

of the Panch Maháls, are equipped with axes or bill hooks for the purpose of destroying creepers and other noxious growth, and a large amount of work is thus performed, but it fails to make any visible impression, as a rule, on the forests. During the past year, however, the standards in some of the closed coupes of the West Thána Division were specially ordered to be freed of the *Loranthus longifolia* parasite described in paragraph 187 by Mr. Shuttleworth in the last report. For the Máhim and Váda ranges alone details are available: in the former 37 coupes were treated at a cost of Rs. 56, and in the latter 4,903 creepers were cut by forest guards, entailing no expense.

(5). *Experiments.*

128. In the East Thána Division the only experiment made during the year was with *Casuarina equisetifolia*, seeds of which were sown in baskets and distributed among the beats in the Murbád Range. A fair percentage of the plants appears to have survived the hot weather, but it is doubtful whether they will thrive so far from the sea-coast. The Gulf-date palm seedlings in Mokháda, which were reported to be doing so well in 1890-91, are said to be thriving, having reached a height of 3 to 4 feet, but it is very doubtful whether they will bear fruit. In the Surat Municipal Gardens, where the tree has flourished for nine or ten years, it has not fecundated.

129. The growth of the casuarina in the small experimental plantations in the Dáhánu and Umbargaon ranges of the West Thána Division continued to make satisfactory progress. In the last-named range it was not deemed necessary to water the Deheri plantation any longer. A few of the plants certainly did die off, but it was not proved that their disappearance was due to want of moisture. Experiments for introducing the Gulf-date palm and the sandalwood tree (*Santalum album*) have not met with any success. Mr. Millett reports as regards the latter that—

“Many experimental sowings of seed have been made, but the plants that come up are poor, stunted and scentless; the majority quickly die. Those that survive give more trouble than they are worth.”

130. In the Surat Division the anticipated success of the casuarina plantation, commenced last year near Tithal, has not been realized, as out of 500 seedlings transplanted from the nursery, only 260 were able to survive the hot weather, notwithstanding that the plantation was watered by hand all throughout the dry season, and measures were taken to protect the plants from the south-westerly winds. The sandalwood trees reared in the Bulsár Range some three or four years ago are particularly healthy-looking and have attained a height of 4 feet.

131. In the Panch Maháls Division no new experiments were attempted during the year. The Gulf-date palm is the only exotic which has taken kindly to this division, there being 98 plants alive.

(d). *EXPLOITATION OF MAJOR FOREST PRODUCE.*

132. The method of coppice with standards is applied to the forests of the Thána District, but the exploitation actually carried on partakes more of the character of improvement fellings. This mode of working is inevitable, considering that the condition of the forests is as irregular as it possibly can be, owing to their neglected state before Government took up their management, and since their acquisition even having not been treated under any rational system for a number of years. It is sought in this way to combine the advantages of certain reproduction with the improvement of the existing growing stock. The whole area is now divided into 282 blocks, to which a rotation of forty years is applied, so that the extent of the area set apart for exploitation annually is one-fortieth part of each block. According to this sub-division, exploitation of major forest produce was carried on in 225 compartments covering about 12,032 acres.

133. In the Surat Division the forests were exploited in different ways to suit local conditions. Selection and improvement fellings were undertaken in the Mándvi Range over an area of 347 acres yielding 13 trees, or 36 cubic feet to the acre. The method of treatment adopted in the Thána Division was applied

to the four small isolated blocks in Bulsár, Chikhli and Mándvi ranges. And the leased forests of the Dángs continued to be worked on the old system, that of permitting contractors to remove a specified quantity of such description of timber as meets with their requirements.

134. Major forest produce throughout the year was chiefly exploited from occupied and waste lands in the Panch Maháls Division, as there was a pressing demand to clear such lands to make them available for cultivation. Thus the forests enjoyed almost a complete rest which they are so much in need of.

(e). EXTRACTION AND TRANSPORT OF MAJOR FOREST PRODUCE BY LAND AND WATER.

135. The standing crop offered for sale in the several compartments laid out for the year finding ready purchasers, departmental agency is now very seldom employed in the Thána District for extracting major forest produce. The Department, however, is compelled under the orders contained in Government Resolution No. 7107, dated 6th September 1892, to make arrangements for felling such of them as cannot be disposed of in this manner, in order to supply small branch-wood material for ash manure and fuel for domestic purposes to the surrounding population. In the year under report, although there were 59 unsold coupes, departmental fellings were confined to 4 only. This was decided upon with the consent of the Revenue authorities after it had been shown that the local demand for "ráb" could be easily met from lands outside forest limits, and that owing to the inaccessible situation and poor growth of the coupes the operations would result in a heavy loss to Government.

136. Both land and water carriage is used in this district, the greater portion of timber and fuel being carted from the coupes to the nearest water way or railway station. The extraction of major produce from the forests of the West Thána Division hardly offers any difficulty, as they are situated, as a rule, within easy reach of the one or the other. In the East Thána Division until communications between the foot of the gháts and the main lines of road and rail, running east and west, are improved, the removal of produce from the forests of Mokháda, Khardi and Murbád is impracticable, and, therefore, the coupes in these ranges are not sought after, and even when they are purchased, the contractors extract from them scarcely a fourth of the standing crop.

137. A scheme to facilitate the extraction of timber from the leased forests of the Dángs by a cheap means of communication as afforded by the Ambika River, which is estimated to cost Rs. 3,410 and which has been pronounced by the Executive Engineer, Surat, as "feasible" and "worth undertaking," is under consideration. The rocky obstacles to be met with in the channel are numerous, but the proposed outlay is small comparatively to the magnitude of the work, and, if sanctioned, a large saving will be effected in the cost of transport of timber from these outlying forests.

138. During the year under report, 2,350 bamboos were safely floated down as an experiment from Waghái to the Wághrech sale depôt on the sea-coast, a distance of 60 miles, out of a total of 2,950. The 600 which did not reach their destination were washed away to the sea owing to a heavy flood having suddenly overtaken them.

139. The forests of the Panch Maháls have only had hitherto to supply the very limited demand of the principal towns of the district; but when the Godhra-Rutlam Railway extension is completed, other markets, chiefly in the Ahmedabad and Kaira Collectorates, will be opened out to them.

(f). EXPLOITATION OF MINOR FOREST PRODUCE.

(1). *Extraction of Fodder.*

140. The grass from the fodder reserves and other closures was not extracted by departmental agency anywhere in this Circle. It was, as usual, put up for sale by tender or auction.

141. In the East Thána Division, the outside demand being small owing to the distance of the markets from the places of production and a clause having been recently inserted in the sale terms requiring that purchasers were not to interfere with the villagers if they wished to exercise the free privilege of removing grass for their own consumption, no sales were effected during the year.